

Application No. 09/982,977
Amendment dated June 2, 2003
Reply to Office Action of February 4, 2003

REMARKS/ARGUMENTS

The introductory paragraph on page 1 of the specification has been amended as suggested by the Examiner.

The Examiner states in paragraph 2 of the Action that there are two descriptions for Fig. 3. The preliminary amendment, see page 2, line 19, cancelled the third paragraph under the heading "In the drawings:" on page 5. This removed the double mention of the Fig. 3. If there is any misunderstanding in this regard, please contact the undersigned. However it is believed that this objection is no longer valid.

The Examiner objected to claim 24 on the basis that the word "extension" should be --extrusion--. This correction has been made.

Objections were made to claim 22, but this claim has now been cancelled.

An objection was made that the word "halves" in claim 19, line 13, should be changed to --components--. This amendment has been made.

The Examiner objected that claim 24, line 2, should have the word --the-- inserted before "flights". This amendment has been made.

Claims 19 and 20 were rejected as unpatentable over Canadian Patent No. 1,205,985 to Kiss in view of U.S. Patent No. 4,289,410 to Anders and U.S. Patent No. 3,980,013 to Bredeson. Kiss shows a conveyor section having two components 82a and 82b in Fig. 5. However these components are connected to the core and not to each other. Kiss promises to provide a solution to the problem of

accelerated wear of the auger section at the discharge end of the conveyor. See, for example, page 11, lines 20 - 28, of Kiss and page 12, lines 1 - 8, where the problem is defined. Kiss attempts to provide an auger with a replaceable section at the location where high wear is encountered. In practice however users of the Kiss device quickly found that the auger sections could not be removed from the core in order to replace them. Or, alternatively, they became disconnected from the core, causing considerable inconvenience, damage to the product and potential damage to the machine itself. For this reason the Kiss device was commercially unsuccessful and the problems defined in the Kiss patent continued insofar as the industry was concerned. Thus, although the Kiss patent issued in 1986, the problem of premature wear of the discharge end of the auger continued to plague the industry up to the date of filing of the parent application on January 14, 1998.

It was the applicant who analysed the problem with the Kiss device and invented the solution. The problem is set out at page 2, lines 1 - 5, of the present application. The applicant determined that the vibrations in the mandrel caused the bolts of the Kiss device to loosen so that two halves of the conveyor section disconnect and cause damage to the machine. Alternatively, the vibrations cause the bolts to become welded to the main portion of the auger. Thus the bolts break off when attempts are made to loosen them and the stub of the bolt remains in the core of the auger, making replacement very difficult and impractical. With applicant's invention the bolts can simply be cut or burned off without leaving portions in the core.

It is alleged that the invention as claimed in claims 19 and 20 is obvious over the Kiss patent in view of Anders and Bredeson. However, it is well known that there must be some teaching in Anders and Bredeson which would motivate someone skilled in the art to use the features described in these references to overcome the problem encountered by Kiss. In other words, what would motivate someone skilled in the art to look at the Anders patent and Bredeson patent in order to solve the

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problems encountered with Kiss, namely the auger sections becoming welded to the core or disconnecting from the core?

When we look at the patent to Anders, this discloses a worm feed extruder for processing synthetics, rubber and like materials. The feed worm 1 is divided into two longitudinal sections 7a and 7b which are connected together by screws 8a and 8b. To this extent the patent resembles the structure of the claimed invention. However, the problems which motivated the applicant to create the present invention do not exist in the Anders device. In the first place, the disclosure does not deal with the problems of a vibratory extruder. Nor does it appear that torque is transmitted from the central core to the auger (or feed worm). According to the undersigned's interpretation of Fig. 2 of Anders, there is no central core to which the feed worm part 7a and 7b could be attached. There is no core requiring the transmission of torque. Therefore Anders chose this structure, not to overcome the problems in a traveling extrusion machine as claimed, but rather because there was little alternative available if the feed worm is in two halves.

Anders could only be legitimately combined with Kiss if there was some motivation for someone skilled in the art to look to Anders for a solution to the problems with Kiss. It is respectfully submitted that there would be no motivation to take this approach since Anders does not encounter similar problems in transmitting torque from a central core to the auger segments, nor related problems in a vibratory extruder where bolts become welded to the core.

Referring to Bredeson, this patent shows a split worm for a screw press. Pieces 60 of the worm are keyed onto shaft 30. To this extent the patent resembles the present invention. However the pieces of the worm are not keyed onto the shaft as part of the solution to a problem where connectors on replaceable auger sections become welded to a central core. This is not a vibratory unit, but typically

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is used for expressing liquids from material containing abrasives as disclosed at column 1, lines 42 - 45.

It is frequently possible, after an invention has been developed, to find some or all of the aspects of the structure in a number of earlier patents. The question however is whether or not these earlier patents teach a solution to the problems encountered which motivated the invention.

In the present case we have a long-standing problem with premature wear at the discharge end of the auger in a traveling extrusion machine for forming hollow core concrete sections. This problem existed prior to the Kiss patent. Kiss suggests a solution to the problem, but one which became a commercial failure although the original problem continued for many years after the Kiss patent was issued. A solution was found only when the present inventor came up with the concept of connecting the two components of the spiral conveyor to each other, instead of the hollow shaft, and placing a non-rotation locking device between the components and the hollow shaft. There is nothing in either Anders, or Bredeson which would suggest a solution to the problem, because neither device deals with a similar problem at all. No doubt there are other alternative structures which could be developed, but which would not provide a solution to the problem.

It is submitted that it is not correct to maintain that the invention is unpatentable because portions of the structure can be found in dissimilar devices when the only patent dealing with the same problem (Kiss) uses a different structure. Clearly there is a choice to be made here. The structure employed by the applicant is not merely an obvious alternative to Kiss because it overcomes serious problems encountered by Kiss which made it a commercial failure. Both Anders and Bredeson existed long before Kiss. If it were obvious to employ the structures disclosed in Anders and Bredeson, then why did not Kiss use them and therefore avoid commercial failure? The answer is that neither Kiss, nor

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Anders, nor Bredeson, nor any combination of them deals with the problem of connectors in a vibratory extruder which become welded to the central core. It is the applicant only who has properly analysed the problem and come up with a clean and simple solution. Accordingly the applicant deserves a patent for this invention.

Turning to claims 21, 22 and 24, claim 22 has been cancelled. However it was alleged that claims 21 and 24 are obvious over the Kiss patent in view of U.S. Patent No. 4,133,619 to Wise. The structure of the conveyor in the Wise patent is quite different from what is claimed in the present application. Claim 21 states that the first section of the conveyor within the feed chamber has flights with a first diameter. A second section, adjacent to the molding chamber, has flights with a second diameter. The second diameter is greater than the first diameter. Wise clearly discloses the reverse. The flights within the feed chamber 74 have a greater diameter than the flights at the discharge end. Thus the rejection is not understood by the undersigned.

It is stated on page 7 of the Office Action that it would have been obvious to one of ordinary skill in the art to modify Kiss such that the conveyor includes a second section because such a modification would cause concrete material therein to flow radially outwardly resulting in a dense smooth concrete slab. However the "second section" of Wise has flights with a smaller diameter than the flights of the feed section, so how could Wise possibly render the invention in claim 21 obvious? It shows exactly the reverse structure. It is submitted therefore that this rejection should be withdrawn.

The patentability of claim 23 is argued on the basis of the above comments on Wise as well as for the reasons advanced with respect to claim 19.

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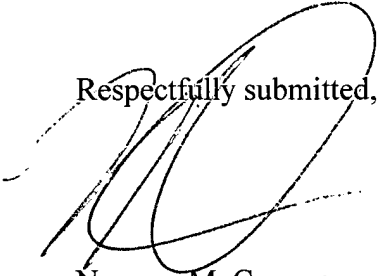
New claims 25 and 26 have been added. It is believed that both of these claims further distinguish the invention from the cited references.

The remaining claims depend upon either claim 19 or claim 21 and are accordingly patentable, both for that reason as well as for the additional structure set out in those claims.

In brief, it is submitted that the objections and rejections have been overcome and that the application should be allowed.

Applicant hereby requests a one-month extension of time for filing the response. A check for US\$55.00 is enclosed herewith to cover the extension.

Respectfully submitted,



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